## **Supplementary Information for**

## Surface Plasmon Enhanced Photocatalysis of Au/Pt-decorated TiO<sub>2</sub> Nanopillar Arrays

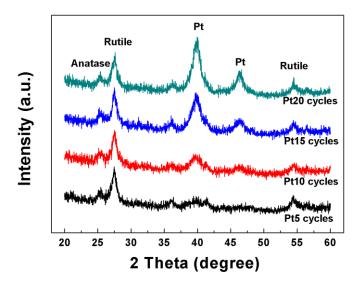
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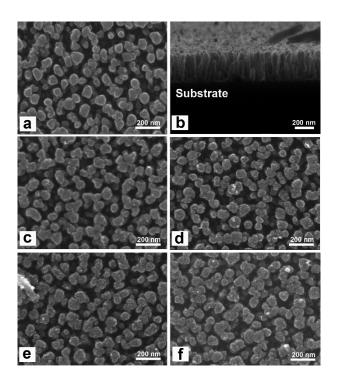
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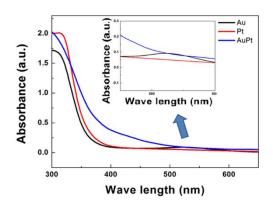
## **Supporting figure captions:**



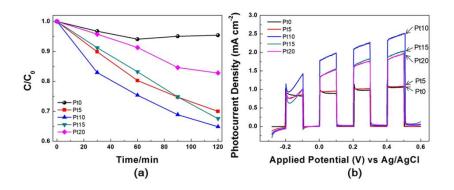
**Figure S1.** SEM images of Pt/TiO<sub>2</sub> NPAs coated with different cycles.



**Figure S2.** SEM images of the samples: (a) top view of TiO<sub>2</sub> NPAs; (b) sectional view of TiO<sub>2</sub> NPAs; Pt/TiO<sub>2</sub> NPAs coated with different cycles: (c) 5 cycles; (d) 10 cycles; (e) 15 cycles; (f) 20 cycles.



**Figure S3.** Absorption spectra of Au/TiO<sub>2</sub> NPAs coated with 10 cycles, Pt/TiO<sub>2</sub> NPAs coated with 10 cycles and Au/Pt-TiO<sub>2</sub> NPAs.



**Figure S4.** UV-vis light discoloration of MO (a) and current versus time measurements (b) of Pt/TiO<sub>2</sub> NPAs coated with different cycles.

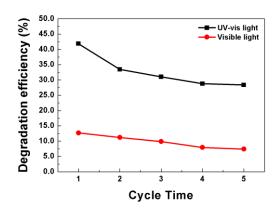
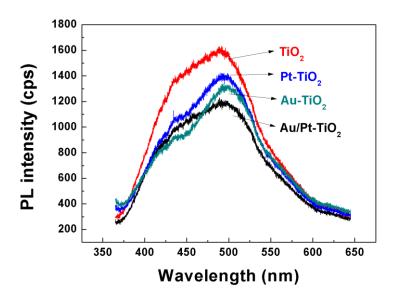


Figure S5. Cycle usage of Au/Pt-TiO<sub>2</sub> NPAs under both UV-vis and visible lights.



**Figure S6.** PL spectrum of single  $TiO_2$  NPAs, Pt- $TiO_2$ , Au- $TiO_2$  and Au/Pt/ $TiO_2$  NPAs.